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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/774,028	FAN ET AL.
	Examiner	Art Unit	
	KEVIN S. MAI	2456	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>21 May 2009</u>.
2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-32</u> is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) <u>1-32</u> is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☐ All   b) ☐ Some * c) ☐ None of:
        1. ☐ Certified copies of the priority documents have been received.
        2. ☐ Certified copies of the priority documents have been received in Application No. _____.
        3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1.   In view of the Appeal Brief filed on May 21, 2009, PROSECUTION IS HEREBY

REOPENED. New grounds of rejection are set forth below.

        To avoid abandonment of the application, appellant must exercise one of the following

two options:

        (1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37

CFR 1.113 (if this Office action is final); or,

        (2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an

appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee

can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have

been increased since they were previously paid, then appellant must pay the difference between

the increased fees and the amount previously paid.

        A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing

below:

        /Bunjob Jaroenchonwanit/

        Supervisory Patent Examiner, Art Unit 2456

2.   Claims 1-32 are pending in the application.

Response to Arguments

3.   Applicant's arguments, filed May 21, 2009, with respect to the rejection(s) of claim(s) 1-

32 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn.

However, upon further consideration, a new ground(s) of rejection is made in view of US Pub.

No. 2004/0054813 to Boucher et al. (hereinafter "Boucher"), and further in view of US Pat. No.

6963932 to Bhat (hereinafter "Bhat") and further in view of US Pat. No. 6687758 to Craft et al.

(hereinafter "Craft") and further in view of US Pat. No. 7376755 to Pandya (hereinafter

"Pandya").

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

5.   The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459

(1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

> 1.   Determining the scope and contents of the prior art.
> 2.   Ascertaining the differences between the prior art and the claims at issue.
> 3.   Resolving the level of ordinary skill in the pertinent art.
> 4.   Considering objective evidence present in the application indicating obviousness
>   or nonobviousness.

6.   Claims 28-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pub.

No. 2004/0054813 to Boucher et al. (hereinafter "Boucher") and further in view of US Pat. No.

6687758 to Craft et al. (hereinafter "Craft").

7.   **As to Claim 28,** Boucher discloses **a method for communicating, comprising:**

[teaming] **a plurality of network interface cards of a host computer, the plurality of network interface cards not providing an offload path that bypasses a kernel of the host computer** (Paragraph [0478] of Boucher discloses the TCP IP driver will be bound to INIC devices as well as other types of NICs. Paragraph [0157] of Boucher discloses offloading to a cost-effective intelligent network interface card (INIC));

adding an additional network interface card to the host computer, the additional network interface card providing an offload path that bypasses the kernel of the host computer (Paragraph [0478] of Boucher discloses the TCP IP driver will be bound to INIC devices as well as other types of NICs. Paragraph [0157] of Boucher discloses offloading to a cost-effective intelligent network interface card (INIC))

[**teaming the plurality of network interface cards and the additional network interface card**]; **and**

[**providing layer 2 load balancing over the plurality of network interface cards and the additional network interface card**].

Boucher does not explicitly disclose **teaming** and **teaming the plurality of network interface cards and the additional network interface card**

However, Craft discloses this. Figure 1 of Craft discloses using a port aggregation driver between the INIC device driver and the stack.

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the INIC system as disclosed by Boucher, with supporting teaming as disclosed by Craft. One of ordinary skill in the art would have been motivated to combine because Boucher claims the benefit of Craft in paragraph [0003] of Boucher.

Boucher does not explicitly disclose **providing layer 2 load balancing over the plurality of network interface cards and the additional network interface card**

However, Craft discloses this. Column 6 lines 35 – 37 of Craft discloses that the port aggregation switch may change the port selection for load balancing purposes. Wherein port aggregation is layer 2 load balancing since it affects the NICs and accordingly their corresponding drivers.

Examiner recites the same rationale to combine used above.

8.   **As to Claim 29,** Boucher-Craft discloses **the method according to claim 28, further comprising: handling packets of a particular connection only via the additional network interface card, the particular connection being maintained by a system that is capable of offloading traffic from the host protocol processing stack** (Paragraph [0157] of Boucher discloses offloading to a cost-effective intelligent network interface card (INIC). Paragraph [0478] of Boucher discloses the TCP IP driver will be bound to INIC devices as well as other types of NICs. Accordingly it is seen that only the INIC supports offloading**).

9.   **As to Claim 30,** Boucher-Craft discloses **the method according to claim 28, wherein the additional network interface card, which has been teamed with the plurality of network interface cards, is adapted to provide an upload path that passes through the kernel of the host computer** (Figure 6 of Boucher discloses the slow path**).

10.   **As to Claim 31,** Boucher-Craft discloses **the method according to claim 28, further**

comprising: processing packets of a particular connection via a host protocol processing

stack, the particular connection not being an offloaded connection although being

maintained by a system that is capable of offloading traffic from the host protocol stack

(Paragraphs [0267]-[0269] of Boucher discloses the ATCP stack being able to perform slow path

processing).

11.   **As to Claim 32,** Boucher-Craft discloses **the method according to claim 31, further**

comprising: transmitting the processed packets only through the additional network

interface card (Paragraph [0478] of Boucher discloses the ATCP driver will be bound

exclusively to INIC devices).

12.   Claims 1-3, 5-9 and 12-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Boucher and further in view of US Pat. No. 6963932 to Bhat (hereinafter "Bhat") and Craft.

13.   **As to Claim 1,** Boucher discloses **a system for communications, comprising:**

a transport layer/network layer processing stack (Figure 31 of Boucher discloses a Microsoft

TCP/IP Driver)**; and**

[an intermediate driver] coupled to the transport layer/network layer processing stack via

a first miniport and a second miniport (Figure 31 of Boucher discloses the Microsoft TCP/IP

driver being connected to a 3COM miniport driver and an INIC miniport driver),

[wherein the first miniport supports teaming], and

wherein the second miniport is dedicated to a system that can offload traffic from the
transport layer/network layer processing stack (Paragraph [0157] of Boucher discloses
offloading to a cost-effective intelligent network interface card (INIC), accordingly it is seen that
the INIC miniport driver would support offloading**).**

Boucher does not explicitly disclose an **intermediate driver** being coupled.

However, Bhat discloses this. Column 3 lines 1-20 of Bhat discloses an NDIS
intermediate driver being connected to the transport protocol via multiple miniport instances.

It would have been obvious to one of ordinary skill in the art at the time of invention to
combine the INIC system as disclosed by Boucher, with connecting the intermediate driver via
multiple miniport instances as disclosed by Boucher. One of ordinary skill in the art would have
been motivated to combine to apply a known technique to a known device. It is seen in
paragraph [0479] of Boucher that the system can utilize an NDIS and as such it would be
obvious to apply the techniques of Bhat on this NDIS.

Boucher does not explicitly disclose **wherein the first miniport supports teaming.**

However, Craft discloses this. Figure 1 of Craft discloses using a port aggregation driver
between the INIC device driver and the stack.

It would have been obvious to one of ordinary skill in the art at the time of invention to
combine the INIC system as disclosed by Boucher, with supporting teaming as disclosed by
Craft. One of ordinary skill in the art would have been motivated to combine because Boucher
claims the benefit of Craft in paragraph [0003] of Boucher.

14.   **As to Claim 2,** Boucher-Bhat-Craft discloses **the system according to claim 1, further comprising:**

a first network interface card coupled to the intermediate driver (Paragraph [0478] of Boucher discloses the TCP IP driver will be bound to INIC devices as well as other types of NICs); **and**

a second network interface card coupled to the intermediate driver (Paragraph [0478] of Boucher discloses the TCP IP driver will be bound to INIC devices as well as other types of NICs),

wherein the second network interface card supports the system that can offload traffic from the transport layer/network layer processing stack (Paragraph [0478] of Boucher discloses the TCP IP driver will be bound to INIC devices as well as other types of NICs. Paragraph [0157] of Boucher discloses offloading to a cost-effective intelligent network interface card (INIC)), **and**

wherein the first miniport, the first network interface card and the second network interface card support teaming (Figure 1 of Craft discloses using a port aggregation driver between the INIC device driver and the stack)

Examiner recites the same rationale to combine used in claim 1.

15.   **As to Claim 3,** Boucher-Bhat-Craft discloses **the system according to claim 2, wherein the first network interface card comprises a plurality of network interface cards** (Paragraph [0478] of Boucher discloses the TCP IP driver will be bound to INIC devices as well as other types of NICs).

16.   **As to Claim 5,** Boucher-Bhat-Craft discloses **the system according to claim 2, wherein the second network interface card is the only network interface card that supports traffic from the system that can offload traffic from the transport layer/network layer processing stack** (Paragraph [0157] of Boucher discloses offloading to a cost-effective intelligent network interface card (INIC). Paragraph [0478] of Boucher discloses the TCP IP driver will be bound to INIC devices as well as other types of NICs. Accordingly it is seen that only the INIC supports offloading**).**

17.   **As to Claim 6,** Boucher-Bhat-Craft discloses **the system according to claim 1, wherein the transport layer/network layer processing stack comprises a transmission control protocol/internet protocol (TCP/IP) stack** (Paragraph [0478] of Boucher discloses the TCP IP driver will be bound to INIC devices as well as other types of NICs**).**

18.   **As to Claim 7,** Boucher-Bhat-Craft discloses **the system according to claim 1, wherein the first miniport comprises a virtual miniport instance** (Column 3 lines 15-25 of Bhat disclose a miniport instance is created by a miniport driver and accordingly it is seen that each miniport instance is a virtual instance**).**

       Examiner recites the same rationale to combine used in claim 1.

19.   **As to Claim 8,** Boucher-Bhat-Craft discloses **the system according to claim 7, wherein the virtual miniport instance comprises a virtual miniport instance adapted for teamed**

traffic (Figure 1 of Craft discloses using a port aggregation driver between the INIC device

driver and the stack)

      Examiner recites the same rationale to combine used in claim 1.

20.   **As to Claim 9,** Boucher-Bhat-Craft discloses **the system according to claim 1, wherein**

the second miniport comprises a virtual miniport instance (Column 3 lines 15-25 of Bhat

disclose a miniport instance is created by a miniport driver and accordingly it is seen that each

miniport instance is a virtual instance).

      Examiner recites the same rationale to combine used in claim 1.

21.   **As to Claim 12,** Boucher-Bhat-Craft discloses **the system according to claim 1,**

wherein the second miniport supports traffic that is processed by the transport

layer/network layer processing stack (Figure 31 of Boucher discloses the Microsoft TCP/IP

driver being connected to a 3COM miniport driver and an INIC miniport driver. Accordingly it

is seen that the INIC miniport driver would support the traffic).

22.   **As to Claim 13,** Boucher-Bhat-Craft discloses **the system according to claim 1,**

wherein the second miniport supports traffic that has not been offloaded by the system that

can offload traffic from the transport layer/network layer processing stack (Paragraph

[0178] of Boucher discloses the INIC being able to operate on both fast-path and slow-path

traffic).

23.   **As to Claim 14,** Boucher-Bhat-Craft discloses **the system according to the claim 1,**

wherein traffic that has been offloaded by the system that can offload traffic from the

transport layer/network layer processing stack bypasses the transport layer/network layer

processing stack and the intermediate driver (Abstract of Boucher discloses the INIC

provides a fast-path that avoids protocol processing. Paragraph [0065]).

24.   **As to Claim 15,** Boucher-Bhat-Craft discloses **the system according to claim 1,**

wherein the intermediate driver supports teaming (Figure 1 of Craft discloses using a port

aggregation driver between the INIC device driver and the stack).

         Examiner recites the same rationale to combine used in claim 1.

25.   **As to Claim 16,** Boucher-Bhat-Craft discloses **the system according to claim 1,**

wherein the intermediate driver comprises a network driver interface specification (NDIS)

intermediate driver (Paragraph [0479] of Boucher that the system can utilize an NDIS).

26.   **As to Claim 17,** Boucher-Bhat-Craft discloses **the system according to claim 1,**

wherein the intermediate driver is aware of the system that can offload traffic from the

transport protocol/network protocol processing stack (Column 5 lines 1 – 10 of Craft

discloses that since the fast-path conditions described involve offloading control and processing

of a connection to either of the INICs in association with the ports the fast-path and port

aggregation protocol need to be synchronized).

         Examiner recites the same rationale to combine used in claim 1.

27.   **As to Claim 18,** Boucher-Bhat-Craft discloses **the system according to claim 1, wherein teaming supports load balancing** (Column 6 lines 35 – 37 of Craft discloses that the port aggregation switch may change the port selection for load balancing purposes**).**

 Examiner recites the same rationale to combine used in claim 1.

28.   **As to Claim 19,** Boucher-Bhat-Craft discloses **the system according to claim 1, wherein teaming supports fail over** (Column 5 lines 53 – 54 of Craft discloses that port aggregation and fail-over switching mechanisms are provided across multiple INICs**).**

 Examiner recites the same rationale to combine used in claim 1.

29.   **As to Claim 20,** Boucher-Bhat-Craft discloses **the system according to claim 1, wherein teaming supports virtual network capabilities** (Column 3 lines 1-25 of Bhat discloses the system supporting virtual LANs and virtual network interface cards**).**

 Examiner recites the same rationale to combine used in claim 1.

30.   Claims 21-24, 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boucher and further in view of Craft and further in view of US Pat. No. 7376755 to Pandya (hereinafter "Pandya").

31.   **As to Claim 21,** Boucher discloses **a system for communications, comprising:**

a first set of network interface cards comprising a second set and a third set, the second set

comprising a network interface card that is capable of offloading one or more connections,

the third set comprising one or more network interface cards that are not capable of

providing an offload path (Paragraph [0478] of Boucher discloses the TCP IP driver will be

bound to INIC devices as well as other types of NICs. Paragraph [0157] of Boucher discloses

offloading to a cost-effective intelligent network interface card (INIC))**; and**

[an intermediate driver coupled to the second set and to the third set, the intermediate

driver being part of a host computer and supporting teaming over the second set and the

third set], [the host computer supporting iWARP traffic],

[wherein fail over and the teaming are only performed by the host computer and/or one or

more of the network interface cards].

Boucher does not explicitly disclose **an intermediate driver coupled to the second set**

and to the third set, the intermediate driver being part of a host computer and supporting

teaming over the second set and the third set and **wherein fail over and the teaming are**

only performed by the host computer and/or one or more of the network interface cards

However, Craft discloses this. Figure 1 of Craft discloses using a port aggregation driver

between the INIC device driver and the stack.

It would have been obvious to one of ordinary skill in the art at the time of invention to

combine the INIC system as disclosed by Boucher, with supporting teaming as disclosed by

Craft. One of ordinary skill in the art would have been motivated to combine because Boucher

claims the benefit of Craft in paragraph [0003] of Boucher.

Boucher does not explicitly disclose **the host computer supporting iWARP traffic**

However, Pandya discloses this. Column 11 lines 20-25 of Pandya disclose once both

peers of the communication are ready to use the RDMA mechanism, the data transfer from

RDMA regions can happen with essentially zero copy overhead from the source to the

destination without substantial host intervention if NIC/HBA hardware in the peers implement

RDMA capability. It is seen that iWARP is a well known protocol used to implement RDMA as

such implementation of iWARP in view of using RDMA would have been obvious to try.

It would have been obvious to one of ordinary skill in the art at the time of invention to

combine the INIC system as disclosed by Boucher, with having NICs implement RDMA

capabilities as disclosed by Pandya. One of ordinary skill in the art would have been motivated

to combine such that data transfer from RDMA regions can happen with essentially zero copy

overhead form the source to the destination without substantial host intervention (Column 11

lines 20-25 of Pandya).

32.   **As to Claim 22,** Boucher-Craft-Pandya discloses **the system according to claim 21,**

wherein the second set provides a kernel bypass path and wherein the third set does not

provide a kernel bypass path (Paragraph [0178] of Boucher discloses the INIC being able to

operate on both fast-path and slow-path traffic. Paragraph [0157] of Boucher discloses

offloading to a cost-effective intelligent network interface card (INIC) **).**

33.   **As to Claim 23,** Boucher-Craft-Pandya discloses **the system according to claim 21,**

wherein the second set is associated with a system that is capable of offloading one or more

connections (Paragraph [0157] of Boucher discloses offloading to a cost-effective intelligent

network interface card (INIC)),

wherein the system that is capable of offloading one or more connections offloads a

particular connection (Paragraph [0157] of Boucher discloses offloading to a cost-effective

intelligent network interface card (INIC))**, and**

wherein packets carried by the particular offloaded connection bypass the intermediate

driver (Abstract of Boucher discloses the INIC provides a fast-path that avoids protocol

processing. Paragraph [0065])**.**

34.   **As to Claim 24,** Boucher-Craft-Pandya discloses **the system according to claim 21,**

wherein intermediate driver supports teaming over the first set.

35.   **As to Claim 26,** Boucher discloses **a method for communicating, comprising:**

(a) [teaming a plurality] of network interface cards [using an intermediate driver] of a host

computer, wherein the teaming is only performed by the host computer and/or the

plurality of network interface cards, [wherein plurality of network interface cards support

remote direct memory access (RDMA) traffic] (Paragraph [0478] of Boucher discloses the

TCP IP driver will be bound to INIC devices as well as other types of NICs)**;**

(b) adapting at least one network interface card of the plurality of network interface cards

to provide an offload path (Paragraph [0478] of Boucher discloses the TCP IP driver will be

bound to INIC devices as well as other types of NICs. Paragraph [0157] of Boucher discloses

offloading to a cost-effective intelligent network interface card (INIC)**; and**

(c) adapting remaining network interface cards of the plurality of network interface cards

not to provide an offload path (Paragraph [0478] of Boucher discloses the TCP IP driver will

be bound to INIC devices as well as other types of NICs. Paragraph [0157] of Boucher discloses

offloading to a cost-effective intelligent network interface card (INIC))**.**

      Boucher does not explicitly disclose **teaming** using **an intermediate driver.**

      However, Craft discloses this. Figure 1 of Craft discloses using a port aggregation driver

between the INIC device driver and the stack.

      It would have been obvious to one of ordinary skill in the art at the time of invention to

combine the INIC system as disclosed by Boucher, with supporting teaming as disclosed by

Craft. One of ordinary skill in the art would have been motivated to combine because Boucher

claims the benefit of Craft in paragraph [0003] of Boucher.

      Boucher does not explicitly disclose **wherein plurality of network interface cards**

support remote direct memory access (RDMA) traffic

      However, Pandya discloses this. Column 11 lines 20-25 of Pandya disclose once both

peers of the communication are ready to use the RDMA mechanism, the data transfer from

RDMA regions can happen with essentially zero copy overhead from the source to the

destination without substantial host intervention if NIC/HBA hardware in the peers implement

RDMA capability

      It would have been obvious to one of ordinary skill in the art at the time of invention to

combine the INIC system as disclosed by Boucher, with having NICs implement RDMA

capabilities as disclosed by Pandya. One of ordinary skill in the art would have been motivated

to combine such that data transfer from RDMA regions can happen with essentially zero copy

overhead form the source to the destination without substantial host intervention (Column 11

lines 20-25 of Pandya).

36.   **As to Claim 27,** Boucher-Craft-Pandya disclose **the method according to claim 26,**

wherein (b) comprises solely associating a system that is capable of offloading one or more

connections with a single network interface card of the plurality of network interface cards

(Paragraph [0478] of Boucher discloses the ATCP driver will be bound exclusively to INIC

devices and the TCP IP driver will be bound to INIC devices as well as other types of NICs.

Paragraph [0157] of Boucher discloses offloading to a cost-effective intelligent network interface

card (INIC))**.**

37.   Claims 4 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boucher-

Bhat-Craft and further in view of Pandya.

38.   **As to Claim 4,** Boucher-Bhat-Craft discloses **the system according to claim 2.**

Boucher-Bhat-Craft does not explicitly disclose **wherein the second network interface card**

comprises a remote-direct-memory-access-enabled (RDMA-enabled) network interface

card.

        However, Pandya discloses this. Column 11 lines 20-25 of Pandya disclose once both

peers of the communication are ready to use the RDMA mechanism, the data transfer from

RDMA regions can happen with essentially zero copy overhead from the source to the destination without substantial host intervention if NIC/HBA hardware in the peers implement RDMA capability

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the INIC system as disclosed by Boucher, with having NICs implement RDMA capabilities as disclosed by Pandya. One of ordinary skill in the art would have been motivated to combine such that data transfer from RDMA regions can happen with essentially zero copy overhead form the source to the destination without substantial host intervention (Column 11 lines 20-25 of Pandya).

39.   **As to Claim 10,** Boucher-Bhat-Craft discloses **the system according to claim 9.** Boucher-Bhat-Craft does not explicitly disclose **wherein the virtual miniport instance comprises an RDMA-enabled virtual miniport instance.**

However, Pandya discloses this. Column 11 lines 20-25 of Pandya disclose once both peers of the communication are ready to use the RDMA mechanism, the data transfer from RDMA regions can happen with essentially zero copy overhead from the source to the destination without substantial host intervention if NIC/HBA hardware in the peers implement RDMA capability

Examiner recites the same rationale to combine used in claim 4.

40.   Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boucher-Bhat-

Craft and further in view of "Winsock Direct and Protocol Offload on SANs" to Microsoft.

(hereinafter "Microsoft").

41.   **As to Claim 11**, Boucher-Bhat-Craft discloses **the system according to claim 1.**

Boucher-Bhat-Craft does not explicitly disclose **wherein the system that can offload traffic**

from the transport layer/network layer processing stack comprises a Winsock Direct

system

       However, Microsoft discloses this. Page 2 of Microsoft discloses that Winsock Direct

provides offload of the protocol stack.

       It would have been obvious to one of ordinary skill in the art at the time the invention

was made to combine the system of claim 1 as disclosed by Boucher-Bhat-Craft, with the use of

Winsock Direct as disclosed by Microsoft. One of ordinary skill in the art at the time the

invention was made would have been motivated to utilize Winsock Direct because (Microsoft

page 1) Winsock Direct can increase system performance by freeing up CPU and memory

bandwidth resources to be used by the application.

42.   Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boucher-Craft-

Pandya and further in view of Bhat.

43.   **As to Claim 25,** Boucher-Craft-Pandya discloses **the system according to claim 21,**

further comprising:

a host protocol processing stack coupled to the intermediate driver via a first [virtual]

miniport instance and a second [virtual] miniport instance (Figure 31 of Boucher discloses

the Microsoft TCP/IP driver being connected to a 3COM miniport driver and an INIC miniport

driver),

wherein the first [virtual] miniport instance is associated with traffic of the second set and

the third set (Paragraph [0478] of Boucher discloses the ATCP driver will be bound exclusively

to INIC devices and the TCP IP driver will be bound to INIC devices as well as other types of

NICs)**, and**

wherein the second [virtual] miniport instance is associated solely with traffic of the third

set (Paragraph [0478] of Boucher discloses the ATCP driver will be bound exclusively to INIC

devices and the TCP IP driver will be bound to INIC devices as well as other types of NICs.)**.**

Boucher-Craft-Pandya does not explicitly disclose the miniport's being virtual.

However, Pandya discloses this. Column 11 lines 20-25 of Pandya disclose once both

peers of the communication are ready to use the RDMA mechanism, the data transfer from

RDMA regions can happen with essentially zero copy overhead from the source to the

destination without substantial host intervention if NIC/HBA hardware in the peers implement

RDMA capability

Examiner recites the same rationale to combine used in claim 4.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEVIN S. MAI whose telephone number is (571)270-5001. The examiner can normally be reached on Monday through Friday 7:30 - 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bunjob Jaroenchonwanit can be reached on 571-272-3913. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. S. M./
Examiner, Art Unit 2456

/Bunjob Jaroenchonwanit/

Supervisory Patent Examiner, Art Unit 2456